

CoE 197 ME8 Exercise 6

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```
C:\Users\ysabe\Desktop\CoE197_ME8\6-networking>docker network ls
NETWORK ID      NAME      DRIVER      SCOPE
91553b0fa9ad    bridge   bridge      local
69d89362d900    host     host        local
5a55076986d5    none     null        local

C:\Users\ysabe\Desktop\CoE197_ME8\6-networking>docker network inspect bridge
[
  {
    "Name": "bridge",
    "Id": "91553b0fa9ad22ce7ac6deaac3ad8545dbf5c8d6285a39937751478fe64ec",
    "Created": "2021-05-25T02:47:28.4328953Z",
    "Scope": "local",
    "Driver": "bridge",
    "EnableIPv6": false,
    "IPAM": {
      "Driver": "default",
      "Options": null,
      "Config": [
        {
          "Subnet": "172.17.0.0/16"
        }
      ]
    },
    "Internal": false,
    "Attachable": false,
    "Ingress": false,
    "ConfigFrom": {
      "Network": ""
    },
    "ConfigOnly": false,
    "Containers": {},
    "Options": {
      "com.docker.network.bridge.default_bridge": "true",
      "com.docker.network.bridge.enable_icc": "true",
      "com.docker.network.bridge.enable_ip_masquerade": "true",
      "com.docker.network.bridge.host_binding_ipv4": "0.0.0.0",
      "com.docker.network.bridge.name": "docker0",
      "com.docker.network.driver.mtu": "1500"
    },
    "Labels": {}
  }
]

C:\Users\ysabe\Desktop\CoE197_ME8\6-networking>docker run --rm -d --name dummy ysabelaaa/ping:1.0
8f3549b1751d41fe89ab698480b1d9712beac2e49cd20f2cd141e0e8151e2d

C:\Users\ysabe\Desktop\CoE197_ME8\6-networking>docker network inspect bridge
[
  {
    "Name": "bridge",
    "Id": "91553b0fa9ad22ce7ac6deaac3ad8545dbf5c8d6285a39937751478fe64ec",
    "Created": "2021-05-25T02:47:28.4328953Z",
    "Scope": "local",
    "Driver": "bridge",
    "EnableIPv6": false,
    "IPAM": {
      "Driver": "default",
      "Options": null,
      "Config": [
        {
          "Subnet": "172.17.0.0/16"
        }
      ]
    },
    "Internal": false,
    "Attachable": false,
    "Ingress": false,
    "ConfigFrom": {
      "Network": ""
    },
    "ConfigOnly": false,
    "Containers": {
      "8f3549b1751d41fe89ab698480b1d9712beac2e49cd20f2cd141e0e8151e2d": {
        "Name": "dummy",
        "EndpointID": "35b846c9d7e9d17f5d51b36c64d87d8365d83201abb968e4966feaf4f3d5a",
        "MacAddress": "92:42:ac:11:00:02",
        "IPv4Address": "172.17.0.2/16",
        "IPv6Address": ""
      }
    },
    "Options": {
      "com.docker.network.bridge.default_bridge": "true",
      "com.docker.network.bridge.enable_icc": "true",
      "com.docker.network.bridge.enable_ip_masquerade": "true",
      "com.docker.network.bridge.host_binding_ipv4": "0.0.0.0",
      "com.docker.network.bridge.name": "docker0",
      "com.docker.network.driver.mtu": "1500"
    },
    "Labels": {}
  }
]
```

On the left picture, the docker network was inspected. As you can see, 3 default networks were present: bridge, host, and none.

Upon inspection of the bridge network, it can be seen that the “Containers” entry was empty which is why a ping container was created.

On the right picture, the bridge network was inspected again and this time, the dummy container appeared in the containers entry.

Another ping container was added as seen at the bottom of the right picture. This new ping container was set to ping the dummy container.

```
C:\Users\ysabe\Desktop\CoE197_ME8\6-networking>docker ps
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS        PORTS   NAMES
9fafea5a01e7   ysabelaaa/ping:1.0   "sh -c 'ping $PING_I..."   6 seconds ago   Up 5 seconds   -       pinger
8f3549b1751d   ysabelaaa/ping:1.0   "sh -c 'ping $PING_I..."   About a minute ago   Up About a minute   -       dummy

C:\Users\ysabe\Desktop\CoE197_ME8\6-networking>docker logs pinger
PING 172.17.0.2 (172.17.0.2) 56(84) bytes of data.
64 bytes from 172.17.0.2: icmp_seq=1 ttl=64 time=0.117 ms
64 bytes from 172.17.0.2: icmp_seq=2 ttl=64 time=0.093 ms
64 bytes from 172.17.0.2: icmp_seq=3 ttl=64 time=0.202 ms
64 bytes from 172.17.0.2: icmp_seq=4 ttl=64 time=0.085 ms
64 bytes from 172.17.0.2: icmp_seq=5 ttl=64 time=0.120 ms
64 bytes from 172.17.0.2: icmp_seq=6 ttl=64 time=0.068 ms
64 bytes from 172.17.0.2: icmp_seq=7 ttl=64 time=0.122 ms
64 bytes from 172.17.0.2: icmp_seq=8 ttl=64 time=0.118 ms
64 bytes from 172.17.0.2: icmp_seq=9 ttl=64 time=0.107 ms
64 bytes from 172.17.0.2: icmp_seq=10 ttl=64 time=0.147 ms
64 bytes from 172.17.0.2: icmp_seq=11 ttl=64 time=0.113 ms
64 bytes from 172.17.0.2: icmp_seq=12 ttl=64 time=0.106 ms
64 bytes from 172.17.0.2: icmp_seq=13 ttl=64 time=0.119 ms
64 bytes from 172.17.0.2: icmp_seq=14 ttl=64 time=0.116 ms
64 bytes from 172.17.0.2: icmp_seq=15 ttl=64 time=0.070 ms
```

As seen above, the new ping container is successfully created and is also able to ping the other container in the network.

```
C:\Users\ysabe\Desktop\CoE197_ME8\6-networking>docker stop pinger
pinger

C:\Users\ysabe\Desktop\CoE197_ME8\6-networking>docker run --rm -d -e PING_TARGET=dummy --name pinger ysabelaaa/ping:1.0
eaaafc942661383cf7ed0a8e98afd03274586399381bc5212f1739dd7f748017d
```

```
C:\Users\ysabe\Desktop\CoE197_ME8\6-networking>docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
8f3549b1751d	ysabelaaa/ping:1.0	"sh -c 'ping \$PING_T..."	4 minutes ago	Up 4 minutes		dummy

In the pictures above, instead of an IP address, the dummy container's hostname was used. This, however, led to errors and as a result, removed from the list of containers.

```
Command Prompt
C:\Users\ysabe\Desktop\CoE197_ME8\6-networking>docker network create skynet
e6c7ed8793fe8e1bcfd131d0dfbd6f2eecd33d94a29314511e0bead5b7441439

C:\Users\ysabe\Desktop\CoE197_ME8\6-networking>docket network ls
'docket' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\ysabe\Desktop\CoE197_ME8\6-networking>docker network ls
NETWORK ID        NAME        DRIVER        SCOPE
915530bfa9ad     bridge     bridge        local
cb9b9362d500     host       host          local
5a55076906d5     none       null          local
e6c7ed8793fe     skynet     bridge        local

C:\Users\ysabe\Desktop\CoE197_ME8\6-networking>docker network inspect skynet
[
  {
    "Name": "skynet",
    "Id": "e6c7ed8793fe8e1bcfd131d0dfbd6f2eecd33d94a29314511e0bead5b7441439",
    "Created": "2021-05-25T06:53:09.0043766Z",
    "Scope": "local",
    "Driver": "bridge",
    "EnableIPv6": false,
    "IPAM": {
      "Driver": "default",
      "Options": {},
      "Config": [
        {
          "Subnet": "172.18.0.0/16",
          "Gateway": "172.18.0.1"
        }
      ]
    },
    "Internal": false,
    "Attachable": false,
    "Ingress": false,
    "ConfigFrom": {
      "Network": ""
    },
    "ConfigOnly": false,
    "Containers": {},
    "Options": {},
    "Labels": {}
  }
]

C:\Users\ysabe\Desktop\CoE197_ME8\6-networking>docker network rm skynet
skynet
```

In the picture above, it shows how a custom network (in the case above, it's called skynet) is created and deleted.

```

C:\Users\ysabe\Desktop\CoE197_ME8\6-networking>docker network create skynet
67daee7d6291b2165dc788c8a0ca286f54a48bf883739acdac7f7d2db0e45937

C:\Users\ysabe\Desktop\CoE197_ME8\6-networking>docker network ls


| NETWORK ID   | NAME   | DRIVER | SCOPE |
|--------------|--------|--------|-------|
| 915530bfa9ad | bridge | bridge | local |
| cb9b9362d500 | host   | host   | local |
| 5a55076906d5 | none   | null   | local |
| 67daee7d6291 | skynet | bridge | local |



C:\Users\ysabe\Desktop\CoE197_ME8\6-networking>docker run --rm -d --network skynet --name dummy ysabelaaa/ping:1.0
docker: Error response from daemon: Conflict. The container name "/dummy" is already in use by container "8f3549b1751d41fe89ab69848d0b1d97128eace2e49cd20f2cd141e0e8151e2d". You have to remove (or rename) that container to be able to reuse that name.
See 'docker run --help'.

C:\Users\ysabe\Desktop\CoE197_ME8\6-networking>docker ps


| CONTAINER ID | IMAGE              | COMMAND                   | CREATED        | STATUS        | PORTS | NAMES |
|--------------|--------------------|---------------------------|----------------|---------------|-------|-------|
| 8f3549b1751d | ysabelaaa/ping:1.0 | "sh -c 'ping \$PING_T..." | 26 minutes ago | Up 26 minutes |       | dummy |



C:\Users\ysabe\Desktop\CoE197_ME8\6-networking>docker rm 8f35
Error response from daemon: You cannot remove a running container 8f3549b1751d41fe89ab69848d0b1d97128eace2e49cd20f2cd141e0e8151e2d. Stop the container before attempting removal or force remove

C:\Users\ysabe\Desktop\CoE197_ME8\6-networking>docker stop dummy
dummy

C:\Users\ysabe\Desktop\CoE197_ME8\6-networking>docker ps


| CONTAINER ID | IMAGE | COMMAND | CREATED | STATUS | PORTS | NAMES |
|--------------|-------|---------|---------|--------|-------|-------|
|--------------|-------|---------|---------|--------|-------|-------|



C:\Users\ysabe\Desktop\CoE197_ME8\6-networking>docker run --rm -d --network skynet --name dummy ysabelaaa/ping:1.0
3e94e0ed7a6280023226c29072f0cf6933610d239fb9819591b8bfd9dc688128

C:\Users\ysabe\Desktop\CoE197_ME8\6-networking>docker run --rm -d --network skynet -e PING_TARGET=dummy --name pinger ysabelaaa/ping:1.0
b606d609082fb62f4d41d7cc396ce763f4afc4a2a67b188a2e2df10e87307a59

C:\Users\ysabe\Desktop\CoE197_ME8\6-networking>docker logs pinger
PING dummy (172.20.0.2) 56(84) bytes of data.
64 bytes from dummy.skynet (172.20.0.2): icmp_seq=1 ttl=64 time=0.228 ms
64 bytes from dummy.skynet (172.20.0.2): icmp_seq=2 ttl=64 time=0.116 ms
64 bytes from dummy.skynet (172.20.0.2): icmp_seq=3 ttl=64 time=0.077 ms
64 bytes from dummy.skynet (172.20.0.2): icmp_seq=4 ttl=64 time=0.131 ms
64 bytes from dummy.skynet (172.20.0.2): icmp_seq=5 ttl=64 time=0.128 ms
64 bytes from dummy.skynet (172.20.0.2): icmp_seq=6 ttl=64 time=0.081 ms
64 bytes from dummy.skynet (172.20.0.2): icmp_seq=7 ttl=64 time=0.129 ms
64 bytes from dummy.skynet (172.20.0.2): icmp_seq=8 ttl=64 time=0.125 ms
64 bytes from dummy.skynet (172.20.0.2): icmp_seq=9 ttl=64 time=0.144 ms

```

```

C:\Users\ysabe\Desktop\CoE197_ME8\6-networking>docker ps


| CONTAINER ID | IMAGE              | COMMAND                   | CREATED        | STATUS        | PORTS | NAMES  |
|--------------|--------------------|---------------------------|----------------|---------------|-------|--------|
| b606d609082f | ysabelaaa/ping:1.0 | "sh -c 'ping \$PING_T..." | 24 seconds ago | Up 23 seconds |       | pinger |
| 3e94e0ed7a62 | ysabelaaa/ping:1.0 | "sh -c 'ping \$PING_T..." | 51 seconds ago | Up 50 seconds |       | dummy  |



C:\Users\ysabe\Desktop\CoE197_ME8\6-networking>docker stop pinger
pinger

C:\Users\ysabe\Desktop\CoE197_ME8\6-networking>docker stop dummy
dummy

```

In the picture above, the skynet network was created again and the dummy and pinger containers were added to this network. As you can see, no errors were encountered and both containers were successfully created.